

N^o 13,367



A.D. 1901

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COMPLETE SPECIFICATION.

“Improvements in Electric Furnaces for Dental and other Purposes”.

We, ROBERT WINTER Dentist of Elsässerstrasse 60, Berlin and VICTOR PAPPENHELM Merchant of Schadowstrasse 4/5 Berlin in the Empire of Germany do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The electric furnaces for dental purposes or the like of well-known construction are mostly constructed in such manner that the metal wires which can be switched into a current circuit are embedded in plates of refractory material, for example clay or the like, these plates forming the sides walls of the furnace so that the metal wire, made incandescent by the electric current passed through it, also renders the surrounding plate incandescent. As, however, metals have a different co-efficient of expansion from that of plates of clay, chamotte or the like, a difference of tension will occur, especially on the rapid cooling of the metal wires when the circuit is broken, between the wires and the plates, whereby damage is liable to occur.

In order to avoid these drawbacks, the expansion of the metal wires is according to the present invention made independent of the heating bodies surrounding them.

A furnace of this description is shown in the accompanying drawing;
Figure 1 being a front view of the furnace;
Figure 2 a side elevation;
Figure 3 a vertical cross section and
Figure 4 a vertical longitudinal section.

On the walls of a furnace casing small rods *b* or lengths of rods or tubular sections of refractory material and of any desired cross-section are arranged and secured in any suitable way, say by pins or clamps, or merely by the wires which pass through them, in such a manner that they can expand independently of the furnace walls when heated.

As shown in the drawing, platinum wires *d* are passed through axial borings or passages *c* in these rods; the cross-section of the holes *c* being sufficiently large to enable the platinum wire to move freely in every direction. The rods *b* forming the heating bodies are arranged at a slight distance from each so that they may radiate heat towards the interior from at least three sides.

Instead of being formed of continuous rods *b*, the heating bodies can, as already mentioned, consist of several parts or sections, for instance, lengths of rods, beads, *etc.* which is advantageous for the expansion of the material by heat. By the present arrangement breaking of the wires is prevented and it is at the same time impossible for the furnace casing *a* to crack or burst in consequence of the great expansion of the wires as the walls of the furnace can be made of separate plates which are not firmly connected together. The present construction affords the further advantage of facilitating the finding and repairing without interfering with the furnace walls, of any defective portion of the heating wires which may have been caused in consequence of variations in electrical tension. In order to avoid such damage to the furnace walls *a* when in operation they are preferably formed of separate plates, which, after the furnace has been mounted,

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Improvements in Electric Furnaces for Dental and other Purposes.

are held together by means of a casing *f* of sheet metal coated or packed internally with asbestos paste *e* or the like. The casing itself is provided with a rear wall *h* hinged at *g* and is held together by a cover *k* secured by hand nuts or screws *i i*. In order to avoid the arrangement of the contact terminals *l* and switch *m* on the fireclay walls, they are arranged on projections *n* on the metal casing or they may be mounted directly on the latter.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed we declare that what we claim is:—

1. An electric furnace for dental and other purposes characterised by the use of a series of rods or lengths of rods of refractory clay or the like mounted on the inside walls of the furnace casing and provided with longitudinal holes for receiving heating wires of small cross-section whereby the wire as well as the heating bodies surrounding them on becoming incandescent, can expand independently of one another substantially as described. 10 15

2. The complete electric furnace for dental and other purposes substantially as described or illustrated in the accompanying drawings.

Dated this 1st day of July 1901.

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Agents for the Applicant 20

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FIG. 1.

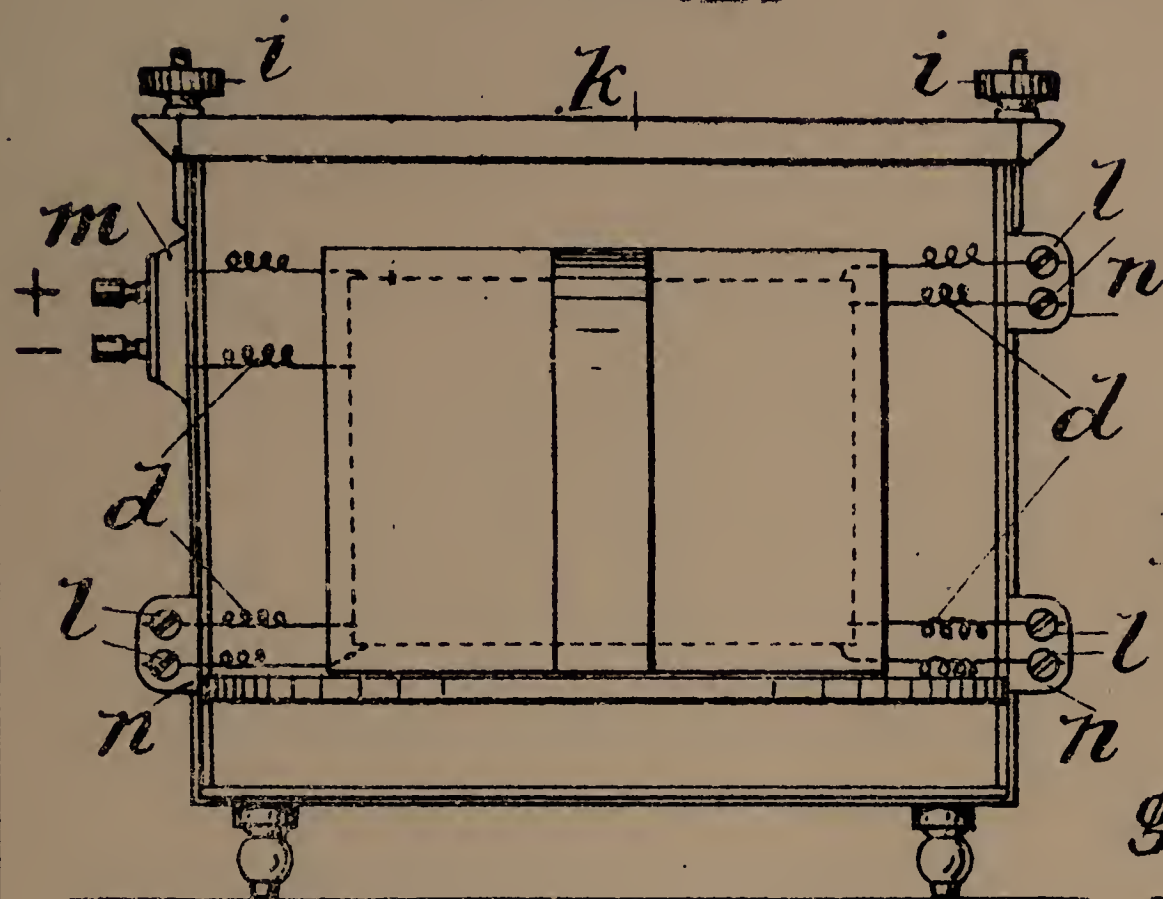


FIG. 2.

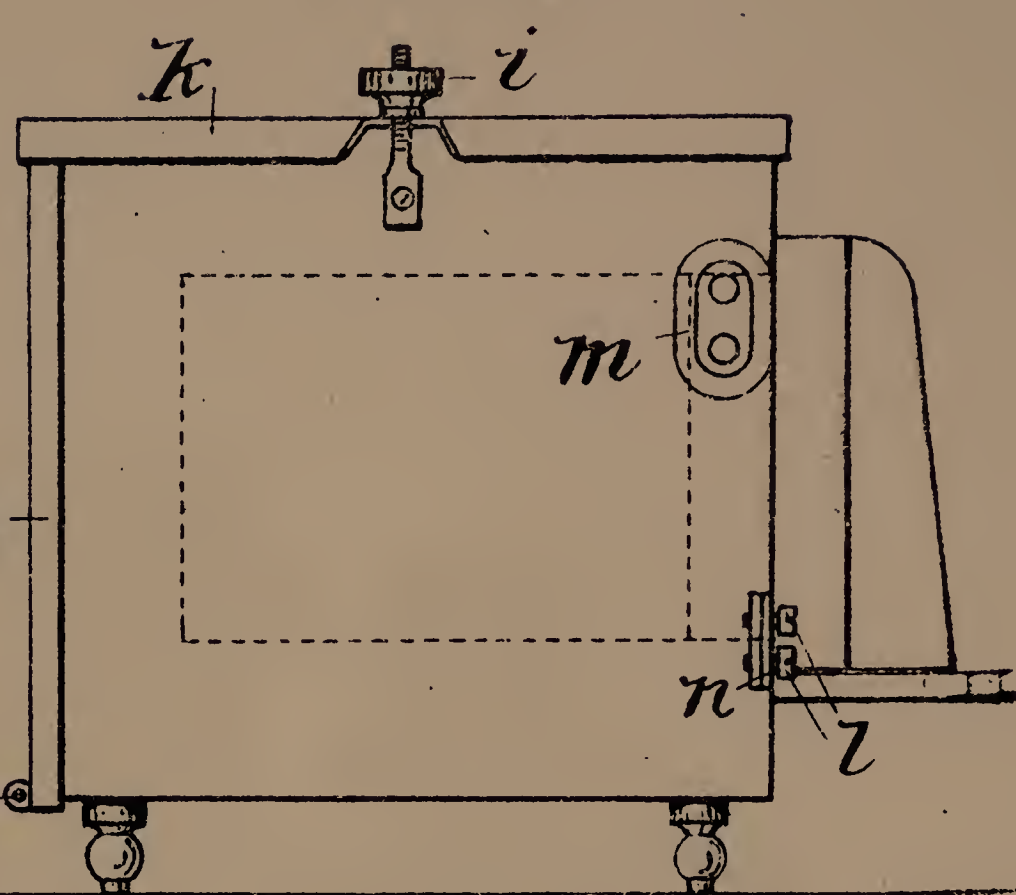


FIG. 3.

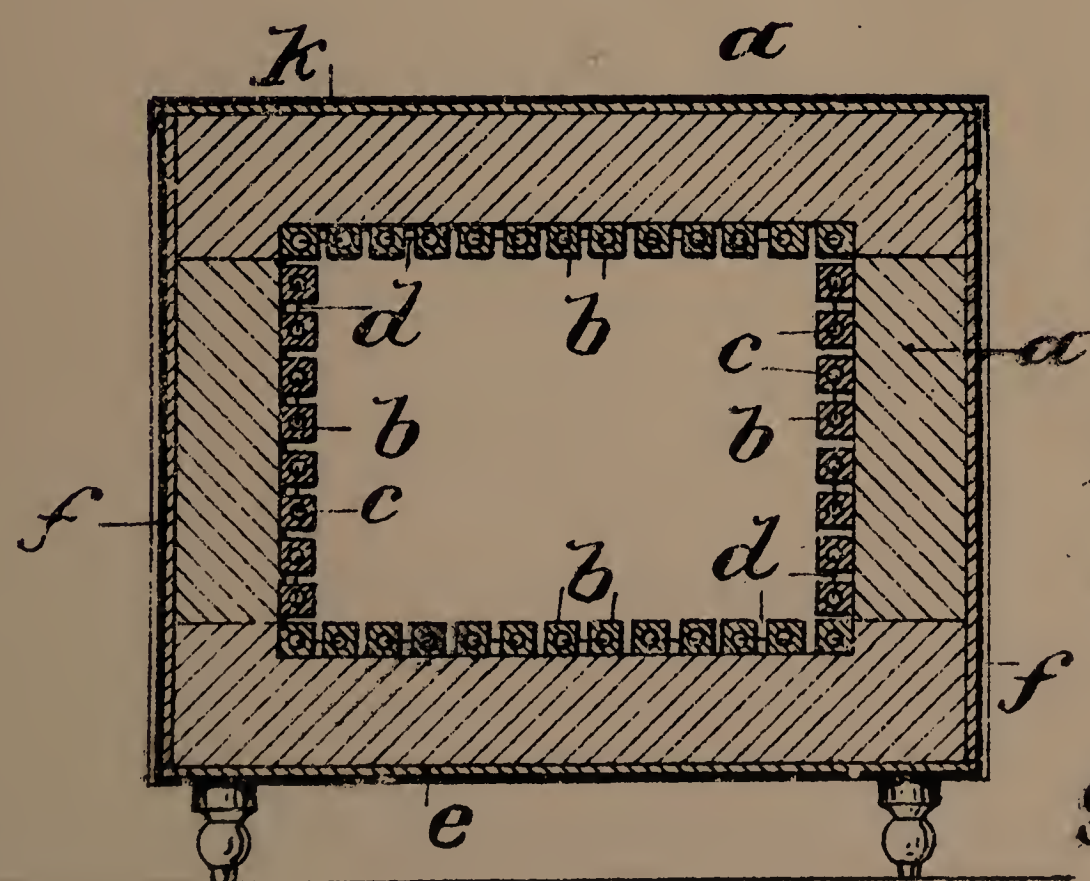
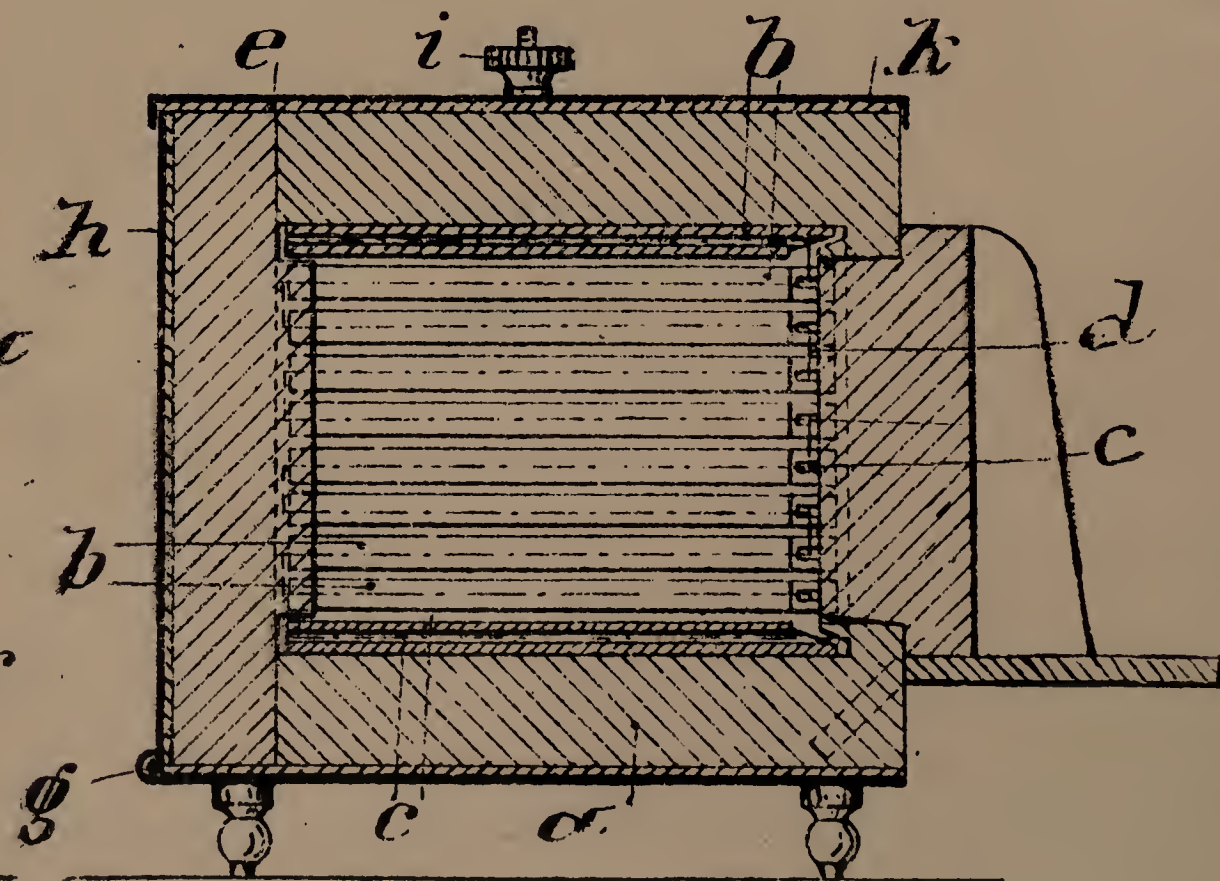


FIG. 4.



[This Drawing is a reproduction of the Original on a reduced scale.]

